❖ Write a Python program to sum all the items in a list.

```python
list = [1,2,3,4,5]
sum = 0
for item in list:
    sum = item + sum
print('final sum of',list,'is',sum)
```

❖ Write a Python program to multiply all the items in a list

```python
list = [1,2,3,4,5]
mul = 1
for item in list:
    mul = item * mul
print('final mul of',list,'is',mul)
```

❖ Write a Python program to get the largest number from a list

➢
```python
list = [51,23,93,74,55,93,100]
num = 0
for item in list:
    if item >= num:
        num = item
        item = item +1

    else:
        num = num
        item = item +1
print('largest num in',list,'is',num)
```

➢
```python
list = [51,23,93,74,55,93,100]
len = len(list)
list.sort()
print('largets num is',list[len-1])
```

❖ Write a Python program to get the smallest number from a list

```python
list = [51,23,93,74,55,93,100]
list.sort()
print('smallest num is',list[0])
```

❖ **5.** Write a Python program to count the number of strings where the string length is 2 or more and the first and last character are same from a given list of strings.
Sample List : ['abc', 'xyz', 'aba', '1221']
Expected Result : 2

```python
list = ['abc', 'xyz', 'aba', '1221']
count = 0
for item in list:

    if len(item)>2 and item[0]==item[len(item)-1]:
        count = count + 1
    else:
        count = count

print(count)
```

❖ Write a Python program to get a list, sorted in increasing order by the last element in each tuple from a given list of non-empty tuples.
Sample List : [(2, 5), (1, 2), (4, 4), (2, 3), (2, 1)]
Expected Result : [(2, 1), (1, 2), (2, 3), (4, 4), (2, 5)]

```python
list = [(2, 5), (1, 2), (4, 4), (2, 3), (2, 1)]
x = []
for item in list:
    z = item[1]
    x.append(z)
x.sort()
result = []
for num in x:
    for item in list:
        if num == item[1]:
            result.append(item)
print(result)
```

❖ Write a Python program to remove duplicates from a list

```python
z = [2,4,5,3,2,1,2,4]
x = set(z)
print(list(x))
```

❖ Write a Python program to check a list is empty or not

```python
if len(list) <= 0:
    print('list is empty')
else:
    print('list is not empty')
```

❖ Write a Python program to find the list of words that are longer than n from a given list of words. N=3

```python
list = ['a','tool', 'visualize', 'what', 'the','computer','is']
result = []
for item in list:
    if len(item)>=3:
        result.append(item)
print(result)
```

❖ Write a Python function that takes two lists and returns True if they have at least one common member

```python
list1 = [5,9,6,4,3,2]
list2 = [1,7,0,8,5]
result = False
for x in list1:
    for y in list2:
        print(x,y)
        if x==y:
            result = True
            break
        else:
            result = False
    break
print(result)
```

❖ Write a Python program to generate a 3*4*6 3D array whose each element is *.

```python
for col in range(3):
    for row in range(4):
        for d in range(6):
            print('*',end='\t')
        print('\t')
```

❖ Write a Python program to print the numbers of a specified list after removing even numbers from it.

```python
list = [63,85,99,44,25,23,52,74,67]

import copy
list1 = copy.deepcopy(list)
for item in list1:
    print(item)
    if item % 2 != 0:
        list.remove((item))
print(list)
```

❖ Write a Python program to shuffle and print a specified list

```python
list = [63,85,99,44,25,23,52,74]

from random import shuffle
shuffle(list)

print(list)
```

❖ Write a Python program to generate and print a list of first and last 5 elements where the values are square of numbers between 1 and 30 (both included)

```python
list = []
for item in range(1,31):
    list.append(item**2)
print(list[0:5])
print(list[-5:])
```

❖ Write a Python program to generate and print a list except for the first 5 elements, where the values are square of numbers between 1 and 30 (both included)

```python
list = []
for item in range(1,31):
    list.append(item**2)
print(list[5:])
```

❖ Write a Python program to generate all permutations of a list in Python

```python
list = [1,2,3]
from itertools import permutations
x = permutations(list)
for item in x:
    print(item)

y = permutations((list),2)
for item in y:
    print(item)
```

❖ Write a Python program to get the difference between the two lists

```python
list1 = [1,2,3]
list2 = [3,4,5]
x = set(list1)
y = set(list2)
a=(x-y)
b=(y-x)
c=list(a)+list(b)
print(c)
```

❖ Write a Python program access the index of a list.

```python
num = [52,66,23,12,47,89,25]

x = enumerate(num)
for item in x:
    print(item)
```

❖ Write a Python program to convert a list of characters into a string

```python
s = ['a', 'b', 'c', 'd']
str1 = ''.join(s)
print(str1)
```

❖ Write a Python program to flatten a shallow list

```python
num = [[52,66],[23,12,47],[89,25]]
from itertools import *

x = itertools.chain(*num)
print(list(x))
```

❖ Write a Python program to select an item randomly from a list

```python
import random
list = [36,89,54,67,16,73,18,29,34]
print(random.choice(list))
```

❖ Write a Python program to find the second smallest number in a list

```python
l1 = [36,18,89,54,67,16,36,73,18,29,34]
x = set(l1)
y = list(x)
y.sort()
print(y[1])
```

❖ Write a Python program to get unique values from a list.

```python
l1 = [36,18,89,54,67,16,36,73,18,29,34]
list = []
for item in l1:
    x = l1.count(item)
    if x == 1:
        list.append(item)
print(list)
```

❖ **.** Write a Python program to get the frequency of the elements in a list.

➢
```python
l1 = [36,18,89,54,67,16,36,73,18,29,34]
l2 = set(l1)
l3 = list(l2)
for item in l3:
    x = l1.count(item)
    print(item,'-',x)
```

➢
```python
l1 = [36,18,89,54,67,16,36,73,18,29,34]
import collections
count = collections.Counter(l1)
print(count)
```

❖ Write a Python program to count the number of elements in a list within a specified range

```python
l1 = [36,18,89,54,67,16,36,73,118,29,324]
count = 0
for item in l1:
    if item<=100 and item>=40:
        count = count+1
print(count)
```

❖ Write a Python program to create a list by concatenating a given list which range goes from 1 to n.
Sample list : ['p', 'q']
n =5
Sample Output : ['p1', 'q1', 'p2', 'q2', 'p3', 'q3', 'p4', 'q4', 'p5', 'q5']

```python
p1 = ['p','q']
n = 5
count = 1
list = []
for num in range(n):
    for item in p1:
        x = str(item)+str(count)
        list.append(x)
    count = count+1
print(list)
```

❖ Write a Python program to change the position of every n-th value with the (n+1)th in a list.
Sample list: [0,1,2,3,4,5]
Expected Output: [1, 0, 3, 2, 5, 4]

```python
list1 = [0,1,2,3,4,5]
list2 = []
n = len(list1)
```

```python
for x in range(n):
    print('--', x)
    if x % 2 ==0:
        list2.append(list1[x+1])
    else:
        list2.append(list1[x-1])
print(list2)
```

- ❖ Write a Python program to convert a list of multiple integers into a single integer.
  Sample list: [11, 33, 50]
  Expected Output: 113350

```python
l1 = [11,33,50]
y = ""
for item in l1:
    x = str(item)
    y = y+x
print(y)
```

- ❖ Write a Python program to generate groups of five consecutive numbers in a list

```python
list1 = [1,2,3,4,5,6,7,8,9,10,11,12,13,14,15]
list = []
list2 = []
for item in list1:
    list2.append(item)
    if len(list2) == 5:
        list.append(list2)
        list2 =[]
print(list)
```

- ❖ Write a Python program to insert an element before each element of a list

```python
l1 = ['red','black','green']
l2 = []
for item in l1:
    l2.append('xxx')
    l2.append(item)
print(l2)
```